(12) UK Patent Application (19) GB (11) 2 337 279 (13) A

(43) Date of A Publication 17.11.1999

(21) Application No 9910491.1

(22) Date of Filing 07.05.1999

(30) Priority Data
(31) 984017 (32) 13.05.1998 (33) ZA

(51) INT CL[6]
E04H 17/04

(52) UK CL (Edition Q)
E1D DCL D1079 D109 D402

(56) Documents Cited
US 4509726 A

(58) Field of Search
UK CL (Edition Q) E1D DCL DF109
INT CL[6] B21F , E04H
ON - LINE: EPODOC, WPI,PAJ

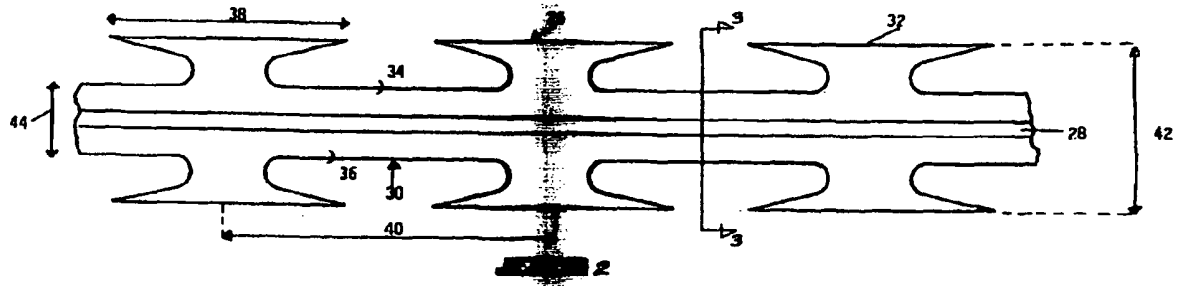
(71) Applicant(s)
Cochrane Steel Products (Proprietary) Limited
(Incorporated in South Africa)
18 Botha Street, Alrode, Alberton 1499, South Africa

(72) Inventor(s)
Richard Bruce Cochrane

(74) Agent and/or Address for Service
Birmingham Barbed Tape Limited
Unit 18, Hartlebury Trading Estate, Hartlebury,
Kidderminster, Worcs, DY10 4JB, United Kingdom

(54) Abstract Title
Barb tape

(57) Barb tape includes a core wire 28 and strip material 30 attached to the core wire, the strip material being formed with at least one flange 34, 36 extending longitudinally of the core wire and projecting radially therefrom, and has a plurality of barbs 26 at spaced intervals, the recurring distance 40 at which barbs are located being less than 100 mm. The maximum barb length 38 may be 30 mm, the maximum overall width 42 may be 28 mm, the maximum "tape" width 44 may be 12 mm, the thickness 0.45 mm and the core wire may be 2.5 mm diameter: all may be galvanised steel. The dimensions used are such that it is difficult to disable the tape by bending barbs without snagging on adjacent barbs.



GB 2 337 279 A

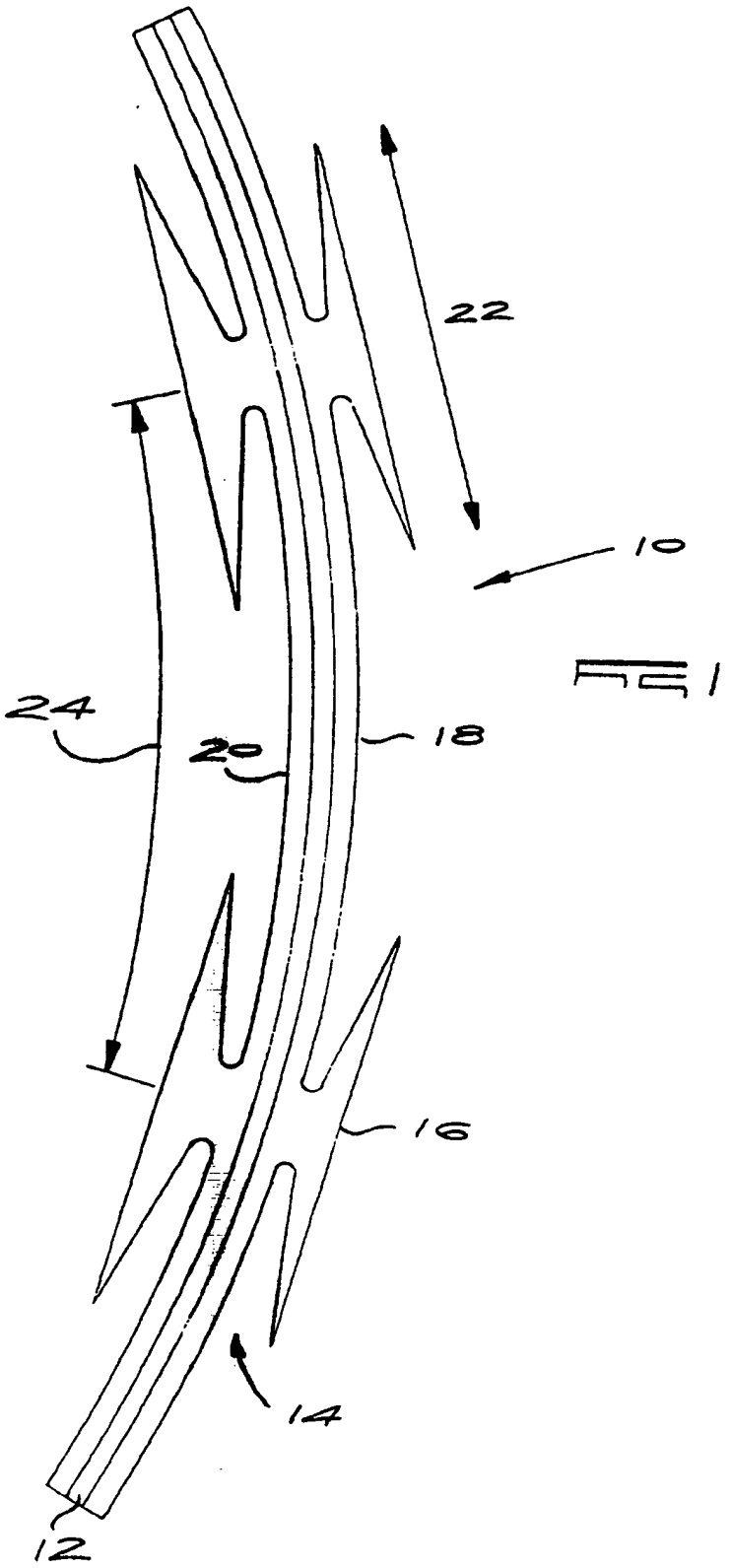


FIG 1

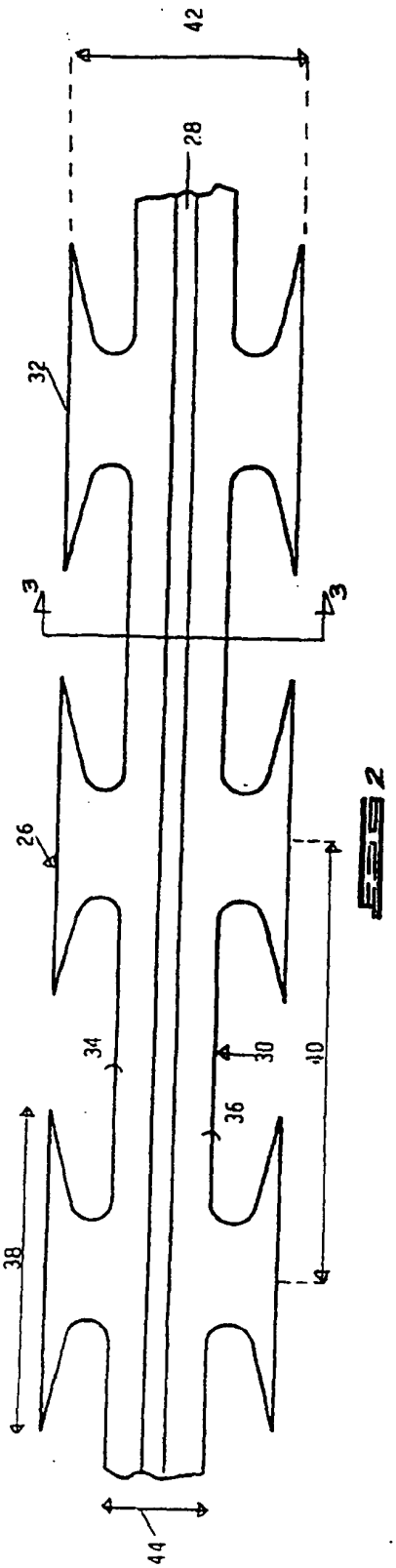


FIG 2

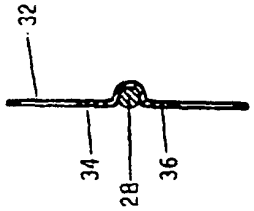


FIG 3

BARB TAPE

BACKGROUND OF THE INVENTION

This invention relates to barb tape.

Barb tape is made from a core wire to which strip material, preformed with barbs, is crimped. In one type of barb tape the core wire is made from high tensile steel so that the resulting product is difficult to cut. The use of high tensile steel adds to the cost of the finished product.

In a different type of barb tape the core wire and the strip material are formed from stainless steel. This increases the cost of the end product but does, generally, result in a superior product.

In order to increase the stiffness of the barb tape it is known to form the strip material with flanges, between successive barbs, which extend in a radial direction from the core wire.

The applicant has found that barb tape which is currently available and which has been stiffened in the aforementioned manner does not offer a significant deterrent effect if the strip material is galvanised mild steel. The barbs are readily bent by hand and the sharp edges of the barbs can thereby be moved to positions at which the danger which is otherwise presented by the barbs is

reduced. On the other hand if the strip material is formed from stainless steel then the cost of the barb tape is increased.

SUMMARY OF THE INVENTION

The invention provides barb tape which includes a core wire, and strip material attached to the core wire, the strip material being formed with at least one flange which extends in the longitudinal direction of the core wire and which projects radially from the core wire, and with a plurality of barbs, at spaced intervals along the length of the core wire, the spacing between successive barbs being less than 100mm.

A preferred spacing between adjacent barbs is in the range of from 35mm to 55mm and a suitable barb spacing is approximately 42mm.

The maximum length of each barb formation, measured in a direction which is parallel to the direction in which the core wire extends, i.e. from end to end of the barb formation, is less than 50mm with a preferred barb length being in the range of from 25mm to 35mm and a suitable dimension being 30mm.

According to a different aspect of the invention the ratio of barb spacing to barb length is between the ratios of from 8:5 to 6:5 with a suitable ratio being approximately 7:5.

Preferably the strip material is galvanised steel.

Preferably the core wire is galvanised steel.

Although it falls within the scope of the invention to form the strip material with a single flange of the aforementioned kind the strip material may be formed with two flanges which substantially oppose each other projecting in opposite directions from the core wire.

The width of the strip material, once it has been attached to the core wire, is preferably less than 28mm with a suitable value being of the order of 21mm.

The width of the strip material measured from flange to flange, i.e. the width of the strip material viewed in plan between adjacent barbs, is preferably less than 12mm and may be of the order of 9mm.

The core wire may have any suitable diameter and preferably is approximately 2,5mm in diameter.

The thickness of the strip may vary according to requirement with a suitable value being approximately 0,45mm.

The invention is also intended to cover strip material of the aforementioned kind used without a core wire.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is further described by way of examples with reference to the accompanying drawings in which:

Figure 1 is a representation of prior art barb tape known to the applicant,

Figure 2 is a plan view of barb tape according to the invention, and

Figure 3 is a cross-sectioned view of the barb tape of Figure 2 taken on a line 3-3.

DESCRIPTION OF PREFERRED EMBODIMENT

Figure 1 of the accompanying drawings illustrates a prior art version of barb tape 10 known to the applicant. The barb tape includes a core wire 12 and a galvanised strip 14 which is crimped to the core wire.

The strip 14 is formed with barbs 16 and, between successive barbs, has radially projecting flanges 18 and 20 on opposed sides of the core wire.

The length 22 of each barb formation, i.e. measured from tip to tip as is indicated in Figure 1, is of the order of 63mm. The spacing between successive barbs, designated 24 in Figure 1, is approximately 107mm.

Although the flanges 18 and 20 do stiffen the barb tape the applicant has

established that the particular configuration illustrated in Figure 1 does not possess significant deterrent value for the barbs 16 are easily bent by hand and, due to the size and spacing of the barbs, it is possible to neutralise the deterrent effect of the barb tape, over a reasonable length thereof, within a relatively short period of time, to such an extent that an intruder can climb over the barb tape without exposing himself to substantial injury.

Figures 2 and 3 illustrate in plan and in cross-section respectively barb tape 26 according to the invention which offers an enhanced deterrent effect compared to the prior art barb tape 10 shown in Figure 1. The barb tape 26 includes a core wire 28 of galvanised mild steel and galvanised strip material 30 which is crimped to the core wire. The strip material is formed with barbs 32 and has flanges 34 and 36 which project outwardly from the core wire, substantially in opposed radial directions, between successive barbs.

The length 38 of each barb formation, measured from tip to tip thereof, is approximately 30mm and the spacing 40 between successive barbs is approximately 42mm.

The width 42 of the barb tape, viewed in plan as is indicated in Figure 2, is approximately 21mm. The core wire 28 has a diameter of 2,5mm and the flanges 34 and 36 are dimensioned so that, once the strip is crimped to the core wire, the width 44 of the barb tape, measured at regions between adjacent barbs 32, is approximately 9mm.

The strip material has a thickness 46 of about 0,45mm.

The applicant has found that the configuration of barb tape 26, dimensioned substantially as detailed hereinbefore, possesses a number of significant benefits. Firstly the cost thereof is relatively low for the core wire and the strip material are made from galvanised mild steel which is significantly cheaper than stainless steel.

The flanges 34 and 36 impart a stiffness to the barb tape which is comparable to the stiffness of barb tape formed from stainless steel material. The barbs 32 are relatively small and are not as easily bent as the barbs 16 shown in Figure 1. The spacing 40 between adjacent barbs makes it relatively difficult to bend a barb 32 without being injured by an adjacent barb. Also, a relatively large number of barbs must be bent in order to neutralise a section of the barb tape. The close barb spacing also means that a person handling the material is confronted with a greater number of barbs than what would be the case if the barb tape of the type shown in Figure 1 were being handled.

If the barb tape 26 is formed into coils, of relatively small diameter, then the coils have sufficient stiffness to stand without any additional form of reinforcing. This has significant deterrent and cost benefits. On the other hand if the coils are relatively larger and are coupled to one another in concertina fashion, by using clips, then the number of clips required for this purpose is reduced.

CLAIMS

1. Barb tape which includes a core wire, and strip material attached to the core wire, the strip material being formed with at least one flange which extends in the longitudinal direction of the core wire and which projects radially from the core wire, and with a plurality of barbs, at spaced intervals along the length of the core wire, the spacing between successive barbs being less than 100mm.

2. Barb tape according to claim 1 wherein the spacing between adjacent barbs is in the range of from 35mm to 55mm.

3. Barb tape according to claim 1 or 2 wherein the spacing between adjacent barbs is approximately 42mm.

4. Barb tape according to any one of claims 1 to 3 wherein the maximum length of each barb formation, measured in a direction which is parallel to the direction in which the core wire extends from end to end of the barb formation, is less than 50mm.

5. Barb tape according to claim 4 wherein the length of each barb formation is in the range of from 25mm to 35mm.

6. Barb tape according to claim 5 wherein the length of each barb

formation is approximately 30mm.

7. Barb tape according to claim 1 wherein the ratio of barb spacing to barb length is between the ratios of from 8:5 to 6:5.

8. Barb tape according to claim 7 wherein the said ratio is approximately 7:5.

9. Barb tape according to any one of claims 1 to 8 wherein the strip material is formed with two flanges which substantially oppose each other projecting in opposite directions from the core wire.

10. Barb tape according to any one of claims 1 to 9 wherein the width of the strip material, once it has been attached to the core wire, is less than 28mm.

11. Barb tape according to claim 10 wherein the said width of the strip material is approximately 21mm.

12. Barb tape according to any one of claims 1 to 11 wherein the width of the strip material viewed in plan between adjacent barbs is less than 12 mm.

13. Barb tape according to any one of claims 1 to 12 wherein the core

wire has a diameter of approximately 2,5mm.

14. Barb tape according to any one of claims 1 to 13 wherein the thickness of the strip is approximately 0,45mm.

15. Barb tape substantially as hereinbefore described with reference to Figures 2 and 3 of the accompanying drawings.

Amendments to the claims have been filed as follows

CLAIMS

1. Barb tape which includes a core wire, and strip material attached to the core wire, the strip material being formed with at least one flange which extends in the longitudinal direction of the core wire and which projects radially from the core wire, and with a plurality of barbs, at spaced intervals along the length of the core wire, the recurring distance at which barbs are located being less than 100mm.

2. Barb tape according to claim 1 wherein the recurring distance at which barbs are located is in the range of from 35mm to 55mm.

3. Barb tape according to claim 1 or 2 wherein the recurring distance at which barbs are located is approximately 42mm.

4. Barb tape according to any one of claims 1 to 3 wherein the maximum length of each barb formation, measured in a direction which is parallel to the direction in which the core wire extends from end to end of the barb formation, is less than 50mm.

5. Barb tape according to claim 4 wherein the length of each barb formation is in the range of from 25mm to 35mm.

6. Barb tape according to claim 5 wherein the length of each barb formation

is approximately 30mm.

7. Barb tape according to claim 1 wherein the ratio of barb spacing to barb length is between the ratios of from 8:5 to 6:5.

8. Barb tape according to claim 7 wherein the said ratio is approximately 7:5.

9. Barb tape according to any one of claims 1 to 8 wherein the width of the flange between each pair of adjacent barbs is substantially constant.

10. Barb tape according to any one of claims 1 to 8 wherein the strip material is formed with two flanges which substantially oppose each other projecting in opposite directions from the core wire.

11. Barb tape according to any one of claims 1 to 10 wherein the overall width of the strip material, once it has been attached to the core wire, is less than 28mm.

12. Barb tape according to claim 11 wherein the said width of the strip material is approximately 21mm.

13. Barb tape according to any one of claims 1 to 12 wherein the width of the strip material viewed in plan between adjacent barbs is less than 12 mm.

14. Barb tape according to any one of claims 1 to 13 wherein the core wire has a diameter of approximately 2,5mm.

15. Barb tape according to any one of claims 1 to 14 wherein the thickness of the strip is approximately 0,45mm.

16. Barb tape substantially as hereinbefore described with reference to Figures 2 and 3 of the accompanying drawings.

The Patent Office

INVESTOR IN PEOPLE

13

Application No:	GB 9910491.1	**Examiner:**	J D Cantrell
Claims searched:	1 - 15	**Date of search:**	6 July 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including **GB, EP**, WO & US patent specifications, in:

UK Cl (Ed.Q): E1D: DF109, **DCL**

Int Cl (Ed.6): E04H B21F

Other: ON - LINE : EPODOC, **WPI, PAJ**

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	US 4509726 BOGGS (see col 4 line 68)	1,9,10,12

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.